

TO: Director, National Institute for Occupational Safety and Health

FROM: California Fatality Assessment and Control Evaluation (FACE) Program

SUBJECT: A construction laborer died when he was struck by a fast moving vehicle as he crossed the roadway in a street construction work zone

SUMMARY
California FACE Report #04CA008

A 19-year-old Hispanic construction laborer died when he was struck by a vehicle as he was crossing the road in a street construction work zone. The incident occurred at dusk while it was raining. There were no lights available to illuminate the work area after dusk. The work zone was identified by traffic cones along the work area, a diamond-shaped sign at each end, and two flag persons. The victim was wearing an orange rain coat with reflectors and a hard hat. The CA/FACE investigator determined that in order to prevent future occurrences, employers, as part of their Injury and Illness Prevention Program (IIPP), should:

- Ensure street construction work zones are set up in accordance with the Manual on Uniform Traffic Control Devices (MUTCD).
- Ensure employees in street construction work zones look both ways before crossing the street and wait for oncoming traffic to pass.
- Ensure construction work crews have lights available to illuminate the work area after dusk.

INTRODUCTION

On Monday, March 1, 2004, at approximately 6 p.m., a 19-year-old Hispanic male was struck by a vehicle in a street construction work zone. The victim died on August 2, 2004, from injuries received in the incident. The CA/FACE investigator learned of this incident on August 12, 2004, from the Division of Occupational Safety and Health (Cal/OSHA). Contact with the victim's employer was made on September 9, 2004. On January 28, 2005, the CA/FACE investigator traveled to the victim's place of employment and interviewed the company's superintendent. Documents were obtained from the police and fire departments.

The employer of the victim was a construction company specializing in general contracting. The company had been in business for nine years and had 15 employees. The company had been working at the site where the incident occurred for one day. There were five other employees at the site when the incident occurred. The victim had been employed with the company for one week before the incident occurred.

The victim was born in Mexico and spoke only Spanish. The company had a written safety program that was in English and Spanish. Included in the program were safety instructions for most jobs performed by laborers on construction sites. The company had a training program that consisted mostly of on-the-job-training (OJT). The effects of training were primarily assessed through supervisory monitoring. There was incomplete documentation of the safety training program. It is not known what task specific safety training the victim received nor if there was an assessment of his training.

INVESTIGATION

The site of the incident was an asphalt paved avenue that ran in an east-west direction. The company was contracted to replace a water line three feet deep that connected to a main water line. The water main lay on the south side of the avenue, and most of the work was done on the southern shoulder of the eastbound lane. On the day of the incident, sunset was at 5:50 p.m., and the weather was wet with a light rain falling all day. There were two streetlights on the north side of the avenue which were not operating. The avenue had one non-illuminated sign at each end of the work zone stating that there was a construction work zone ahead. It did not warn that traffic may come to a halt. It did not announce a reduced speed for the work zone. The posted speed for the area was 40 mph. There were traffic cones along the southern edge of the eastbound lane. A flag person stood at each end of the work zone to slow traffic, and to stop it when necessary.

The job had taken longer than anticipated and it was dusk by the time the crew began to finish up by placing steel plates over the open trench using a backhoe. The foreman on the job told the victim he was through for the day and that he could go home. The victim began to walk north across the avenue to get to his vehicle. He was entering the westbound lane within the still active work zone when he was struck by a westbound sports utility vehicle (SUV). The victim's co-worker, who was the flag person at the east end of the work zone, saw the SUV coming down the avenue from the east. He stated he waved the stop sign and whistled at the SUV but it did not stop. Another laborer working as a flag person on the west end of the avenue heard the yell and whistle and saw the SUV hit the victim. The backhoe operator, who was bringing a steel plate to the open trench, called 911. The foreman who was also on the west end of the job saw the incident occur and immediately drove his truck into the path of the SUV. He stopped the SUV approximately 200 feet west of the impact area. The police, fire department, and paramedics arrived within minutes and took control of the scene. The victim was transported to a local hospital. He was later transferred to a convalescent hospital where he died as a result of his injuries on August 2, 2004.

According to the police report, the driver of the SUV stated that he was traveling approximately 40 mph in the westbound lane of the avenue when he heard somebody yelling but did not see anyone. He stated that about a second later he felt an impact, pulled over to the side of the road, and saw a work crew. He told police that he saw the work crew dragging somebody over to the south side of the street, at which point he realized he hit someone. He also told police that his windshield wipers were on because it was raining, his front window was slightly fogged-up, and his dome light was stuck in the on position causing a glare on his windshield. He told police he was having some trouble seeing the roadway in front of him, but saw nothing that indicated to him there was construction work in the area.

CAUSE OF DEATH

The cause of death, according to the death certificate, was head trauma.

RECOMMENDATIONS/DISCUSSION

Recommendation #1: Ensure street construction work zones are set up in accordance with the Manual on Uniform Traffic Control Devices (MUTCD).

Discussion: The MUTCD is a publication of the Federal Highway Administration. It was developed to standardize the design and use of traffic signs, signals, and pavement markings. The MUTCD defines the standards used by road managers nationwide to install and maintain traffic control devices, both permanent and temporary, on all streets and highways. It is the primary reference for all highway and street construction work zone traffic control plans. For a work zone such as the one in this incident, the MUTCD calls for at least four warning signs: two signs at each end of the work zone, one to alert oncoming traffic that there is a work zone ahead, and another sign to alert drivers that flaggers are present. The MUTCD also suggests as an option that there be another sign at each end of the work zone that would alert drivers that they may need to stop. In this incident there were only two warning signs used. There was one sign at each end of the work zone warning of road work ahead. If the additional signs as designated in the MUTCD had been used, there would have been additional warning for the driver of the SUV.

Recommendation #2: Ensure employees in street construction work zones look both ways before crossing the street and wait for oncoming traffic to pass.

Discussion: Although flag persons are usually able to control traffic and prevent unauthorized vehicles from entering construction work zones, there are occasions such as this incident when vehicles will still intrude upon the work zone. It is vital that workers in street construction work zones remain alert to the possibility of intruding traffic. For situations where flag persons are controlling traffic, workers should check for traffic before crossing the roadway. Safe work practices can be enhanced through programs of task-specific training, supervision, incentives, and progressive disciplinary measures.

Recommendation #3: Ensure construction work crews have lights available to illuminate the work area after dusk.

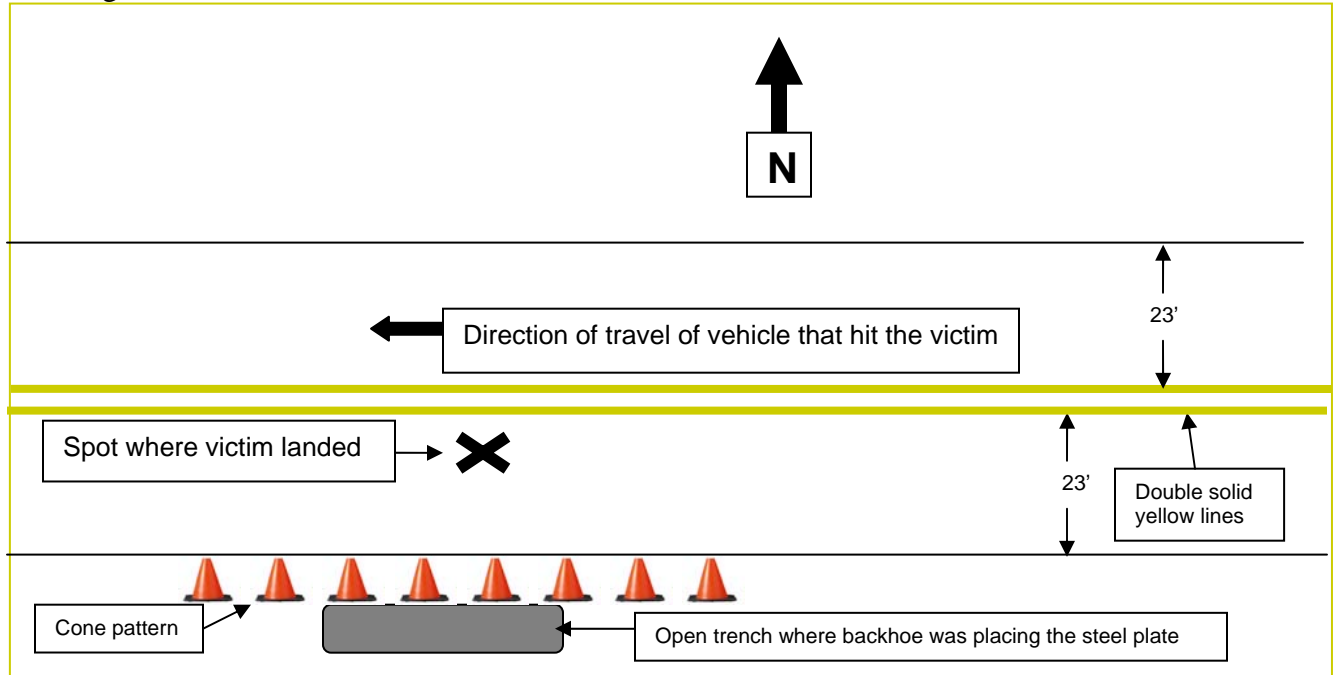
Discussion: Although the victim wore a reflective vest and hard hat, the combination of the rain, nonworking street lights, and oncoming dusk made general visibility poor. If the site had been illuminated or if work had been discontinued until the daylight hours, this incident might have been prevented.

References:

California Code of Regulations, Vol. 9, Title 8, Sections 1523, 1598, 1599

MUTCD, 2003, Federal Highway Administration

Drawing of Incident Scene



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FATALITY ASSESSMENT AND CONTROL EVALUATION PROGRAM

The California Department of Health Services, in cooperation with the Public Health Institute and the National Institute for Occupational Safety and Health (NIOSH), conducts investigations on work-related fatalities. The goal of this program, known as the California Fatality Assessment and Control Evaluation (CA/FACE), is to prevent fatal work injuries in the future. CA/FACE aims to achieve this goal by studying the work environment, the worker, the task the worker was performing, the tools the worker was using, the energy exchange resulting in fatal injury, and the role of management in controlling how these factors interact. NIOSH-funded, state-based FACE programs include: Alaska, California, Iowa, Kentucky, Massachusetts, Michigan, Minnesota, Nebraska, New Jersey, New York, Oklahoma, Oregon, Washington, West Virginia, and Wisconsin.

Additional information regarding the CA/FACE program is available from:

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